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Cost-effectiveness of rotavirus immunization in Indonesia taking breastfeeding patterns into account

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The data collection of antibiotic use's expenditure for nosocomial infection treatment at in-patient department was performed between 1 January 2010 to 30 June 2010. The source of information came from Infectious Control division of the hospital. All information were recorded further source such as in-patient data-based was used if the information of former source was incomplete. **RESULTS:** The analysis showed that patients with nosocomial infection is 314 patients (141 male, 173 female). The most age of infection is between 71–80 years (31.53%). Building that has the most infected frequency is female medicine building (infected 35 patients (11.15%)). The most common pathogen is *Acinetobacter baumannii*-MDR (25.34%) while the most origin of infection is lower respiratory tract (62.80%). Duration of admission in hospital until the occur of nosocomial infection is during the first 10 days (32.80%). The value of all antibiotics used to treat patients is 12,354,176.50 bath and the cost of each month as shown in Figure 1. Sulbactam and Cefoperazone (Sulperazon®) is the most highest cost, our data is similar trend from previous study in other setting. Figure 1 Cost of antibiotics used in each month (data for 6 months). **CONCLUSIONS:** From the information obtained from this study will make the hospital concern about strategies to prevent nosocomial infection to reduce the loss of various and enhance the quality of life for patients.

PIN14

COST OF TREATMENT FOR PATIENT WITH HIV AIDS IN HOSPITAL OF EAST JAVA, INDONESIA

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OBJECTIVES: to obtain information on the cost of treatment (outpatient and inpatient care), including laboratory, drugs, medical supplies, consultation, X-ray, room. **METHODS:** A cross-sectional study was done to collect data in public hospital in East Java. Samples were 89 cases IDU with HIV, 49 of them received inpatient care. Substitution for IDU was not included in the study. **RESULTS:** Increasing number of IDU and HIV/AIDS cases in Indonesia (one province with high cases is East Java) has lead the policy makers to provide subsidy for people living with HIV/AIDS. Little is known about the cost of treatment in hospital. It is important for both payer and hospital to understand how best the provider payment scheme to provide services for PLHIV. The study revealed that most of them were men, at productive age, and come from both urban and rural area. Only 25% of them has less than 3 diagnosis (opportunistic infection), and the rest are having more than 3 diagnosis. The top three cases were Lung disorder, Gastroenteritis and Candidiasis. Sixty-two% of them discharged with better condition, but 35% died. Average Length of stay was 9 days, and some of them were hospitalized more than one month. Average cost for inpatient care was USD 547 per day and outpatient care was USD 61 for one visit. Medical exam, drugs and hotel costs were having highest proportion. This situation was hard for the poor while hospital felt total costs were not sufficiently covered by government financing scheme for the poor. **CONCLUSIONS:** Cost of treatment for PLHIV is high and in the future become serious burden for both payer and provider. Payment to provider should consider the cost of treatment.

PIN15

ECONOMIC EVALUATION OF VACCINATION IN SOUTHEAST ASIAN COUNTRIES: A SYSTEMATIC REVIEW

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OBJECTIVES: This review aimed to explore the research situation in Southeast Asian countries on the economic evaluation of vaccination. **METHODS:** A systematic literature search was conducted in March 2012 using the Medline electronic database with the PubMed interface. The search was limited to English-language articles published during 2001–2012. Keywords of “(anal* OR evaluat*) AND (vaccin* OR immuni*) AND (region/ country names)” were employed. The methodological quality of the study was assessed against the CHEC criteria list. **RESULTS:** Out of 1344 articles, 27 eligible articles were retrieved and reviewed. It was found that the studies had been conducted in seven of eleven countries in the region. Thailand had the greatest number of publications (10). Twelve articles (44%) were written by local researchers, 19% by outside researchers, and 37% in collaboration of both. Among the articles, 56% mentioned the name of a local researcher as the first or corresponding author. The number of articles tended to increase yearly. The types of vaccination included in the studies were dengue, HPV, Hib, Hepatitis A and B, HIV, influenza, Japanese encephalitis, PCV, rotavirus and varicella. Most of the publications dealt with HPV (6) and rotavirus (6). Three studies evaluated a vaccination program that was included in the NIP of the particular country (hepatitis B in Thailand, and influenza and PCV in Singapore). All of the studies employed modeling. The most frequent category of evaluation was CUA (56%), followed by CEA (15%) and CBA (11%). Most of the studies met a brief CHEC criteria list, such as study population, time horizon, perspective, discounting, and sensitivity analysis. **CONCLUSIONS:** An analysis was conducted of publications focusing on the economic evaluation of vaccination in Southeast Asian countries. Most studies were conducted by local researchers. It can be assumed that such economic information is gaining importance in policy decision making.

PIN16

COST-EFFECTIVENESS OF ROTAVIRUS IMMUNIZATION IN INDONESIA TAKING BREASTFEEDING PATTERNS INTO ACCOUNT

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OBJECTIVES: This study aims to assess the cost-effectiveness of rotavirus immunization in Indonesia, taking breastfeeding patterns explicitly into account.

METHODS: An age-structured cohort model was developed for the 2011 Indonesia birth cohort. Next, we compared two strategies, the current situation without rotavirus immunization versus the alternative of a national program. The model applies a 5 years time horizon, with 1 month analytical cycles for children less than 1 year of age and annual cycles beyond 1 year. Four scenarios were compared: population under 1 year old with 100% exclusive breastfeeding, 100% partial breastfeeding, 100% no breastfeeding and the actual combination over the different breastfeeding modes as present in Indonesia currently. Monte Carlo simulations were used to examine the economic acceptability and affordability of the rotavirus vaccination. **RESULTS:** Rotavirus immunization would effectively reduce severe cases of rotavirus during the first 5 years of life. Under the GAVI-subsidized vaccine price the vaccine cost would amount to US\$ 3.7 million per annum. The incremental cost per quality-adjusted-life-year (QALY) in the base case was US\$ 271 from health care perspective; much lower than the Gross Domestic Product (GDP) per capita of US\$ 3,469 in 2011. Affordability results showed that at the GAVI-subsidized vaccine price, rotavirus vaccination could be affordable for the Indonesian health system. Vaccination is most cost-effective in case of 100% no breastfeeding. **CONCLUSIONS:** Rotavirus immunization in Indonesia would be a cost-effective health intervention with GAVI's financial support. The results showed that rotavirus immunization would greatly reduce the burden of disease due to rotavirus. It also showed that no breastfeeding would make vaccination the most cost-effective intervention comparing to other two breastfeeding patterns.

PIN17

COST-UTILITY ANALYSIS OF PNEUMOCOCCAL NONTYPEABLE HAEMOPHILUS INFLUENZA PROTEIN-D CONJUGATE VACCINE (PHID-CV) IN HONG KONG USING TRANSMISSION DYNAMIC MODEL

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Streptococcus pneumoniae has caused invasive diseases as meningitis and bacteremia and non-invasive diseases as pneumonia and acute otitis media (AOM), leading to high morbidity and mortality in infants and the elderly in Hong Kong. **OBJECTIVES:** To examine the health and economic impact of pneumococcal nontypeable haemophilus influenza protein-D conjugate vaccine (PHiD-CV) in the public sector of Hong Kong compared to no vaccination. **METHODS:** A transmission dynamic model adapted with local data was developed to simulate multiple age-specific cohorts progressing with invasive pneumococcal diseases (IPD) (meningitis and bacteremia), all-cause pneumonia, and acute otitis media (AOM) over 10 years assuming annual universal vaccination on newborn infants with coverage rate of 90%. The study was performed from a health care payer's perspective. Epidemiological and cost data inputs were based on previously published study. Direct vaccine effectiveness was estimated from prior clinical trials and post-marketing studies. 1-way and multivariate probabilistic sensitivity analyses were performed to test the robustness of model outcomes. 3% discount rate was applied to both cost and effectiveness. **RESULTS:** Model projections predicted that universal infant PHiD-CV vaccination could prevent 74 deaths (1,553 quality-adjusted life years) caused by IPD and hospitalized pneumonia. PHiD-CV was projected to prevent 555 additional cases of IPD, 19,706 cases of hospitalized pneumonia and 29,974 AOM over 10-year horizon as compared with no vaccination. Assuming vaccine price of HK\$265 (including administration cost of HK\$70) per dose, PHiD-CV vaccination is estimated to save an additional HK\$799.65 millions as compared with no vaccination at the total vaccination cost of HK\$66.18 millions. **CONCLUSIONS:** PHiD-CV is expected to have great impact in alleviating pneumococcal disease burden and to spare considerable disease management cost in treating pneumococcal diseases. In all, universal infant PHiD-CV vaccination is a cost-saving strategy.

PIN18

ANTIMICROBIAL RESISTANCE (AMR) IN THAILAND: A SYSTEMATIC REVIEW

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OBJECTIVES: To analyze AMR in Thailand. **METHODS:** A systematic review over the period 1980 to present under the PRISMA guidelines using 4 databases: Pubmed; Science-direct; Health system research institute (HSRI) of Thailand; and Thai journal citation index centre (TCI). Key words used were [health care-associated OR nosocomial OR hospital acquired AND Economic* AND Thai*] AND [antimicrobial resist* AND Thai*]. We also used key words in Thai language for Thai databases. Inclusion criteria: epidemiologic studies and pharmaco-economic studies of bacterial resistance of nosocomial infection in Thailand. Exclusion criteria: pharmacokinetics, pharmacodynamics, pharmacology, molecular and genomics studies. Studies in agriculture and livestock were also excluded. **RESULTS:** Nineteen studies met eligible criteria in this systematic review. There were 4 groups of study on AMR burden and situation. They were: 1) AMR situations: a systems analysis; 2) AMR burden: epidemiological burden such as surveillance studies from National Antimicrobial Resistance Surveillance Thailand (NARST) and national surveillance of nosocomial infections in Thailand from 1988–2006 and economics burden; 3) factors associated with AMR in Thailand; and 4) studies of AMR preventions and control programs in Thailand. **CONCLUSIONS:** AMR is one of the major health problems in Thailand. The existing data lack clarity and are often unreliable to quantify an accurate amount of AMR burden. More valid and reliable data on the use of antimicrobials and of AMR as well as morbidity and mortality data related to AMR are needed in order to compute burden of AMR in Thailand at a national level and inform policy decision making.